

ATTORNEY DOCKET NO. RFMI01-00213  
U.S. SERIAL NO. 09/801,411  
PATENT

### REMARKS

Claims 1-20 are pending in the present application.

Reconsideration of the claims is respectfully requested.

### 35 U.S.C. § 102 (Anticipation)

Claims 1, 5, 8, 12, 15, 16 and 18-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,239,664 to *Northam*. This rejection is respectfully traversed.

The Advisory Action mailed June 9, 2003 states:

Regardless of whether *Northam* has depicted the stray capacitance incorrectly, there is a suggestion for tuning out such parasitics by way of using inductors to match the resonant frequency of the resonator and allow for the low phase noise oscillator output as noted in the rejection (102, and 103). Please note in *Driscoll*, Col. 3, lines 18-23, for SAWR's tuning out parasitic capacitance that cause mistuning is difficult, and the *Northam* reference does suggests [sic] matching by using induc[t]ors and thus is related to solving the parasitic problem.

Paper No. 10 (emphasis added). Applicant respectfully notes that the above statement applies the incorrect standard to the anticipation rejection, since a suggestion in *Northam* is insufficient to anticipate the claim limitation. In addition, depending on a combination of *Northam* and *Driscoll* as above cannot properly establish anticipation.

Moreover, as previously noted, *Northam* does not disclose that the inductor 230 can, if appropriately sized and connected in parallel with the internal and package capacitance  $C_o$  of the SAW, "approximately tune out a stray capacitance seen at the port within an equivalent circuit for the SAW resonator at a selected frequency" so that "at least one variable tuning capacitance coupled

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between the port of the SAW resonator and an input or output port for the SAW resonator circuit" will "form a series resonance circuit with the SAW resonator and may be selectively employed to alter a resonant frequency of the SAW resonator circuit," as recited in the claims. Instead, *Northam* states that the inductor, sized to resonate with the internal and package capacitance  $C_0$  of the SAW at some unspecified frequency, addresses (a) the steepness of the reactance curve and (b) tuning linearity, NOT forming an effective series resonant circuit of the tuning capacitance with the SAW:

Although the frequency of oscillation can be changed over a fairly wide range by means of  $C(\text{tune})$ , the parameters of the circuit are changing drastically. This creates serious problems in terms of phase noise and tuning linearity. For low phase noise, it is necessary to keep the reactance slope as steep as possible. For tuning linearity, it is necessary to keep this curve as straight as possible over the desired operating frequency range. If the reactance curve is too shallow, low phase noise VCSO 125 becomes susceptible to noise and stability perturbations that are inherent in any electronic apparatus in which low phase noise VCSO 125 may be implemented. Furthermore, the straighter the reactance curve is, the greater is the tuning linearity in the desired operating frequency range.

The performance of low phase noise VCSO 125 is improved by the addition of inductor 230 in parallel with SAW resonator 202 (i.e., with switches S1 and S2 closed). Inductor 230, which has a value of 12.75 nH, is calculated to resonate with the 2 pF value of  $C_0$ , the internal and package capacitance of SAW resonator 202. Additionally, the value of inductor 235 is changed to 37.4042 nH in order to shift the circuit oscillation center frequency to that of SAW resonator 202 (i.e., 1 GHz).

*Northam*, column 7, lines 20–42. The result of connecting inductor 203, as described by *Northam*, is to eliminate the positive-going resistance peak 413 depicted in FIGURE 4 and to produce a linear, steep reactance curve 601:

FIG. 6 is a frequency domain plot of resistance curve 602 and reactance curve 601 seen at the sense point, SP, in the circuit illustrated in FIG. 3, when inductor 230 is placed in parallel to SAW resonator 202 and the value of tuning inductor 235 is

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adjusted. The positive going resistance peak has been eliminated from the narrow frequency range from 998-1002 MHz. Additionally, the reactance curve is both linear and steep over the same range. Furthermore, at the nominal operating frequency of 1 GHz, the reactance is zero ohms (point 611) and the resistance is about -360 ohms (point 612).

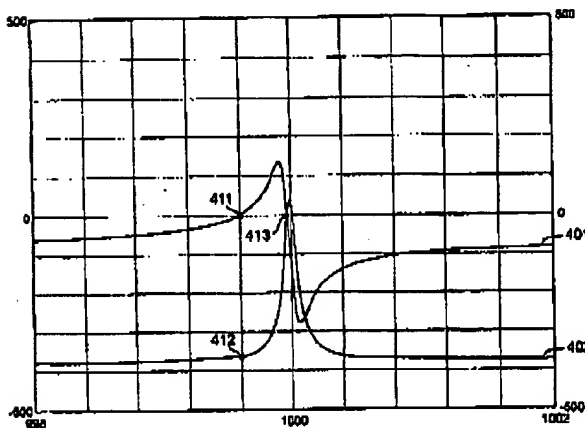


FIG. 4

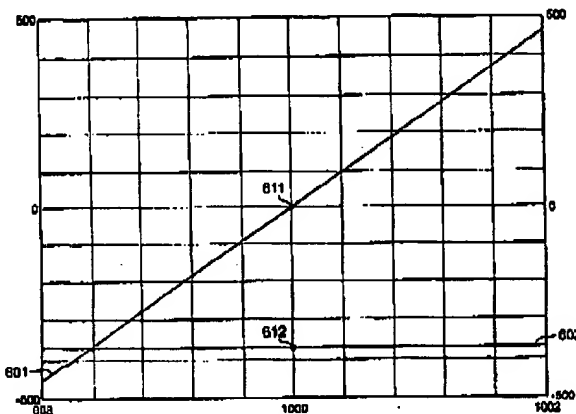


FIG. 6

*Northam*, column 7, lines 43-53 and Figures 4 and 6. *Northam* is silent as to forming a series resonant circuit including the SAW and an external variable tuning capacitance as recited in the claims.

Therefor, the rejection under 35 U.S.C. § 102 has been overcome.

**35 U.S.C. § 103 (Obviousness)**

Claims 1-3, 5-10 and 12-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,608,360 to *Driscoll* in view of *Northam*. This rejection is respectfully traversed.

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A Statement of Common Ownership is being filed herewith in compliance with MPEP § 706.02(l)(2). Accordingly, *Northam* (a 102(e) reference) does not qualify as prior art for the purposes of obviousness under 35 U.S.C. § 103(a), but is excluded under 35 U.S.C. § 102(c).

Therefore, the rejection of claims 1-3, 5-10 and 12-20 under 35 U.S.C. § 103 has been overcome.

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**SUMMARY**

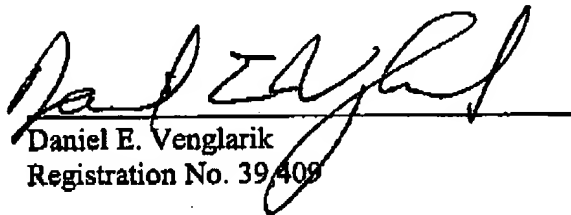
If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *dvenglarik@davismunck.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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